



The Minuteman Repeater Association

The Minuteman

Volume 36, Number 4

March 2007



Membership Meeting

21 March 2007 @ 7:30 PM @ the Campion Center

Mike Raisbeck, K1TWF

New England Division Assistant Director

ARRL Update ~ developments at the league and Q & A Session

Talk in freq: 146.79

More Information on Page 3

President's Corner ~ Bob Dematia, K1IW

From the "only slightly related to ham radio" department this month, a short snippet on HD radio. The CD player in my car recently died. My YL, who tolerates being referred to in ham radio lingo provided I leave out the "X", bought me a replacement. The new one actually had "HD" capability, so now I'm having some fun with this new technology. While the "HD" in TV-land stands for "High Definition", in radio land it stands for "Hybrid Digital". This is because the digital information is sent in sidebands alongside the traditional analog carrier. There's not enough room for a detailed explanation here, so I'll go straight to my experiences.

On the AM band, I've found two stations transmitting HD – WBZ (1030 and Radio Disney (WMKI – 1260). The way the radio works, it initially tunes the analog carrier. As soon as the digital carrier lock acquired, it switches to HD. There is something surreal about hearing an AM station in high fidelity. This effect is somewhat limited because WBZ is mostly talk – but the announcer voices do sound more natural and there's a big difference in the jingles and commercials. One major drawback is that the coverage of the digital signal is limited. When digital lock is lost, the radio switches back to analog. Out here 35 miles west of Boston, I find the radio switching back and forth quite a bit. (By the way, the stations delay their analog signals so that they will be in sync with the digital delay on the HD side). When it switches, the analog signal is still pretty strong. The Radio Disney signal is analog-only until I get to the Waltham area, and even there it's spotty. Disney actually has music, and the HD makes a big difference.

AM Radio DX-ers are not happy about HD radio – the sidebands are quite broad and wipe out distant stations on adjacent channels. Stations still turn off the HD signals at night for this reason. On a traditional AM radio, you can tune to 1020 or 1040 during the day and hear the digital "hash", which sounds like a connected computer modem.

On the FM band, there are probably a dozen or more stations transmitting HD. Some also provide a secondary

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About the Minuteman Repeater Association

The Minuteman Repeater Association (MMRA) is dedicated to Amateur Radio and public service. The MMRA maintains a large system of repeaters in Eastern Massachusetts.

The MMRA meets on the 3rd Wednesday of September, November, January, March, and May. Meeting time, locations and talk-in frequency vary. These are announced in the newsletter and on weekly nets. Meetings are open to all interested parties.

The Minuteman newsletter is mailed one week before each meeting. Members are encouraged to submit articles. Articles may be sent to the editor via email to newsletter@mmra.org. The deadline for articles is the last Friday of the month preceding the meeting.

Each Tuesday evening at 8PM the MMRA links most of the repeaters for an open net. The topic is "Technical Information and Other Stuff". Please join us.

Membership in the MMRA is open to all radio amateurs. Annual dues are \$25 per individual or \$35 per family. See our website for details.

Email to the club leadership should be sent to contact@mmra.org. The MMRA maintains a web site at: <http://www.mmra.org/>

An email distribution list for club members named "MMRA" has been established at: <http://www.yahoogroups.com/>

No part of this newsletter can be copied or posted elsewhere without prior approval from the club. Your cooperation in this matter is greatly appreciated.

Repeater and Frequency Information

| Location | MHz | PL | Call | Note |
|---|--|-------|--------|---|
| Bolton | 29.620 | 131.8 | W1OJ | Affiliated, PTL (+ FTL to 448.625) |
| Marlborough | 53.810 | 71.9 | W1BRI | PTL |
| Norwell | 145.250 | 77.0 | AC1M | Affiliated, PTL |
| Mendon | 146.610 | 146.2 | N1BHI | FTL |
| Quincy | 146.670 | 146.2 | W1BRI | PTL |
| Stoneham | 146.715 | 146.2 | N1NVL | PTL |
| Weston | 146.790 | 146.2 | N1BE | PTL |
| Brookline * | 146.820 | 146.2 | K5TEC | FTL |
| Brookline | 146.985 | 88.5 | W1FCC | Affiliated, PTL |
| Marlborough | 147.270 | 146.2 | W1MRA | PTL |
| Hopkinton | 223.940 | 103.5 | N1BHI | FTL |
| Quincy | 224.400 | 103.5 | N1KUG | FTL |
| Weston | 224.700 | 103.5 | N1NOM | FTL |
| Marlborough | 224.880 | 103.5 | W1MRA | FTL |
| Weston | 442.700 | 88.5 | N1NOM | Network Hub 2 (PTL to Hub1 or 448.625) |
| Norwell | 443.600 | 88.5 | NS1N | Affiliated, PTL |
| Stoneham | 446.725 | 88.5 | W1DYJ | FTL |
| Mt. Wachusett | 448.625 | 88.5 | W1OJ | PTL (+ FTL to 29.620) |
| Milford | 446.825 | 100.0 | WA1QGU | Affiliated, PTL |
| Brookline | 447.875 | 136.5 | K1IW | Affiliated, FTL |
| Shrewsbury | 449.575 | 88.5 | W1BRI | FTL |
| Marlborough | 449.925 | 88.5 | W1MRA | Network Hub 1 (PTL to 448.625) |
| | | | | |
| Marlborough | 144.390 | none | W1MRA | APRS Digipeater |
| ??? | 145.630 | 146.2 | W1MRA | Fox Box |
| | | | | |
| Internet | Echolink node 94940 | | | |
| | IRLP node 4133 | | | |
| Notes: | FTL = Full Time Linked (usually to Hub 1) PTL = Part Time Linked (on schedule or demand) Most repeaters link to the MMRA Hub 1, several can link to an alternate destination | | | |
| PL: | PL is required to prevent interference. The code 750 will temporarily disable the MMRA PL on the 2M repeaters. | | | |
| Autopatch: | Only the hub had a telephone line. Link to the hub if necessary, then bring up the autopatch using the 449.925 autopatch codes | | | |
| Control codes are sent to members upon receipt of dues. | | | | |
| * temporarily in Marlborough | | | | |

Membership Meeting

21 March 2007 @ 7:30 PM @ the Campion Center

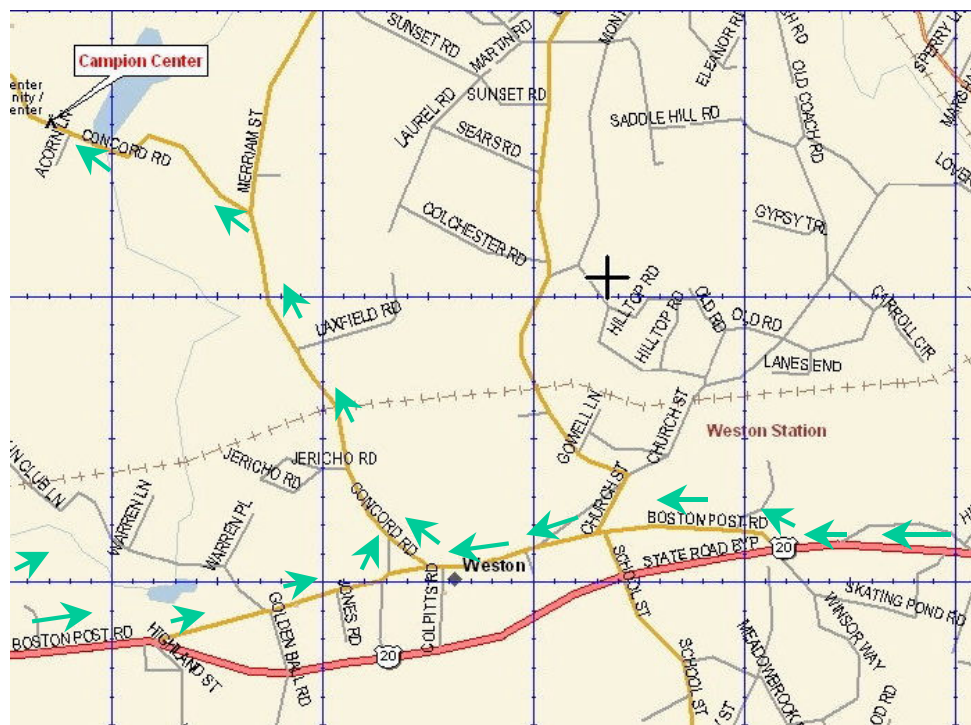
Mike Raisbeck, K1TWF

New England Division Assistant Director

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Directions to the MMRA Meeting



**The Campion Center
19 Concord Road, Weston**

From Rt. 128

Take Rt. 128 to Rt. 20 WEST in Waltham. Take right from Rt. 20 onto Boston Post Road. Take right from Rt. 20 onto Concord Road. The Campion Center is on Concord Road. At the fork in the road, before arriving at the Campion Center, bear left.

From Rt. 20 heading East

Head East on Rt. 20. After entering Weston bear left onto Boston Post Road. From Boston Post Road turn left onto Concord Road. At the fork in the road, before arriving at the Campion Center, bear left.

For those interested in dinner before the meeting, coordinate on 146.79

President's Corner — Continued

channel with alternative programming content. Currently, there are no commercials on any of these sub channels, so it's like getting a few satellite radio channels for free. I noticed only a subtle difference between HD and analog signals on the strong FM stations. Again, HD coverage is limited and some of the weaker stations switch back and forth. In a reception area like this, the analog signals tend to lose their higher frequencies, so I would hear the treble kick in and out when the HD signal locked and unlocked. There's no analog backup for the sub channel, so if you are listening there and the signal unlocks, you get silence.

VHF Hams are catching up with the broadcasters on the digital voice forefront. There is a group in New Hampshire working on bringing the first D-Star system to New England. Like its broadcast counterpart, equipment is still difficult to find and expensive, and this is making adoption of the technology very slow. Nevertheless, it will be interesting to see if ham radio version (which from a technology standpoint is very different from broadcast) will have the same problems with effective range. I guess I need to turn off my new toy and start using my Kenwood TM-732

Repeater Update

Bryan Cerqua, W1BRI ~ Technical Officer

HUB2

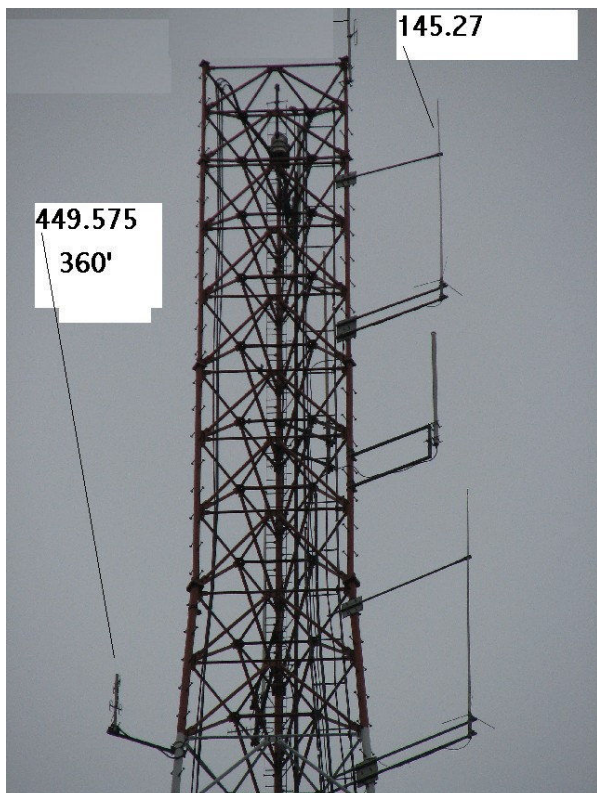
The major ongoing project is to convert our system to have two hubs. See The Minuteman, Volume 36, No. 2, November 2006 for details. All of the ICM crystals for the **HUB2** link radios have arrived.

Quincy

The Quincy link radio has been repaired and crystals installed for **HUB1** and **HUB2**. We hope to install it soon so we will have 146.67 and 224.4 linkable. We also plan to look at the Quincy 220 repeater to find out why its not working.

Southboro 449.575

The repeater continues to run well at its new home in Southboro, however during one Tuesday night during the TIAOS net the link dropped out at 8:45PM. This may have something to do with the Scm 5K clock or error in the scheduler set points. We plan on getting into the site soon to pull the Uniden link radio for the **HUB2** upgrade.



The Southboro site is infested with hornets and we need to seal off all of the holes. When the repeater was installed back a few months ago the hornets were all over the place but lucky for us the weather was cold enough to slow the hornets down.

Weston

Weston is **HUB2**, 442.700

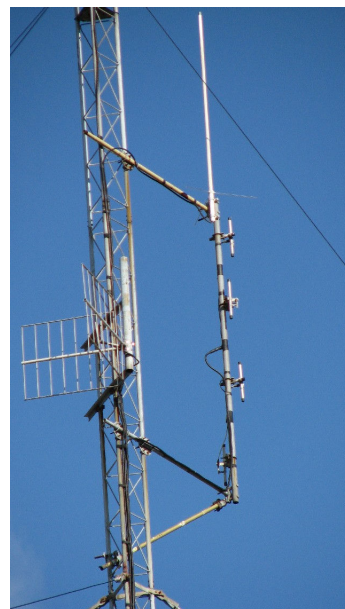
So far so good. The hardline connectors were in tough shape at the repeater end so I took them apart and cleaned them up.

Two antennas were tried in an attempt to identify which one was the 4 bay dipole array and what one is the corner reflector.

After some experimentation with WA1NVC I believe we do have the dipole array connected to the UHF repeater.

The plan is to use the corner reflector for the two channel link radio connected to **HUB2**. This will allow **HUB2** to connect to **HUB1**: 449.925 or 448.625, the Mt. Wachusett repeater that is full time linked to the 29.62 FM repeater. Later this year we plan on adding a small UHF beam antenna to the Weston tower for the 146.79 link or use it for **HUB2** linking depending on what antenna works best to 448.625.

I hope to install the 448.625 crystals in the GE channel elements and also install in the MASTR II link radio this week. If completed, the plan would be to re-install the link radio on **HUB2** soon.



(Continued on next page)

Repeater Report — Continued

Stoneham 446.725, 146.715

The two meter repeater has been experiencing poor sensitivity lately. Bob, K1IW, found a loose connector during a troubleshooting visit on 9 March and it seems to be back in spec.

Bob also found what had failed with the receiver on 446.725 and K1IW will replace/repair it soon. This should put .725 back on line and linkable to either **HUB1** or **HUB2**.

Mendon 146.61

Plans are to use the Motorola M120 on port 3 for linking to **HUB1** and **HUB2**. The Johnson link radio that is currently used will be removed and used in place of one of the Aerotron UHF link radios since we can no longer get channel elements.

At some point we need to turn on PL encode and see if the repeater still keys up due to transmitter noise or some other site noise. Currently the repeater is not transmitting PL.

53.81

The link radio needs to be upgraded for **HUB2** operation. Also we need to find a "Y" to come up with another logic output from the Hamtronics controller to allow switching between the channels.

Treasurer's Report ~ 21 Feb. Kevin Paetzold, K1KWP ~ Treasurer

| | | |
|---------------|----------------|---------------|
| Income | 2006-2007 dues | \$4033 |
| | 2007-2008 dues | 635 |
| | Donations | 426 |
| | Misc. | 220 |
| | TOTAL | \$5314 |

| | | |
|-----------------|------------------|---------------|
| Expenses | Expenses to date | \$3617 |
| | Known upcoming | 690 |
| | TOTAL | \$4307 |

Summary

We would have ~\$1007 in discretionary spending left before running an overall deficit year (this includes the \$635 in dues we already have collected for next year).

MMRA Meeting~ 17January

Larry Banks, W1DYJ

The January membership meeting was held at MEMA in Framingham. A short meeting was moderated by Steve Telsey and Bob DeMattia. Discussion items:

- Bryan -- repeater report
 - Dual hub configuration in process
 - 575 now in Southboro and working well
- Kevin -- membership report, we have a few more than last year
- Roger -- has a 50' tower available
 - Working on 10M project

The Main Event was a viewing of a DVD of the 3Y0X DXpedition, presented by Jim Podsiadlo, AE1C.



This DXpedition went to Peter Island, a small island off the coast of Antarctica in the Bellingshausen Sea in February 2006. They completed 86,888 QSOs in the worst weather you can imagine. The DVD made it very apparent the you need to be in top physical condition to endure a DXpedition this rigorous.

Check <http://www.peterone.com> for more info.



Some of our members before the meeting

MMRA February Board of Directors Meeting

Bob Evans, N1BE, Clerk

The MMRA board met at 7:30 on Feb 21 at Oasis Semiconductor in Waltham. K1KWP, K1IW, N1BDA, N1BE, N1NVK, W1BRI, W1DYJ, WA1NVC, and W3EVE were present.

Kevin, K1KWP, presented a treasurer's report. We had a number of recent dues payments, but about 37 past members have not renewed. About \$600 of expected expenses for this year have not been paid. We have about \$460 of dues for the current year not yet allocated for an particular use.

Bob, K1IW, discussed the logistics of providing link radios for the "Two Hub" project. This would allow Weston to be a network hub in addition to Marlboro West. Bryan, W1BRI, mentioned that we can no longer purchase the additional channel elements that would allow Aerotron radios to work on two link frequencies. We planned to cannibalize one Aerotron's elements so that another could be used in the project. We deferred upgrading Hopkinton to work with the new hub, to avoid the need for one link radio purchase.

As part of the Two Hub expansion, 449.925 will use a 2-channel link radio to link to Weston or to Mt. Wachusett. At present there is no link radio since this is the original hub and the 449.925 repeater Rx and Tx handle the links. In a unanimous vote, with K1IW abstaining, we agreed to purchase a 2-channel Motorola link radio from K1IW for this purpose. (This expenditure is not included in the treasurer's report.)

K1IW mentioned that he suspects that a Tx/Rx relay is sticking and that would be a reason why Quincy 220 sometimes does not transmit. Bob, N1BE, agreed to communicate with KQ1F and K1XM to see if they can assist with an antenna replacement job at Quincy.

At Stoneham, both transmitters seem OK, but there is poor sensitivity of both receivers. The problem stems from the time of the last antenna work there. Cables, Rx duplexers and receiver need to be checked on the next site visit. Although a visit will be needed for link radio up-

grade to support Two Hubs, this may be looked at before that time.

NESMC notified the MMRA that Stoneham UHF is causing interference to the USAF. Although we have very few details, we understand that the USAF is working with the FCC and the ARRL is aware of this situation. We are awaiting contact, probably from the FCC, to learn what is needed to resolve this problem. Stoneham has been de-listed from the NESMC coordination database, apparently due to this complaint. The MMRA board is very concerned that this is an unjustified action that puts the coordination of this RACES repeater in jeopardy. The board unanimously agreed to ask our secretary, W1JMC, to send a letter to NESMC protesting this situation.

Roger, WA1NVC, visited the Clay Center site in Brookline in connection with his 10-Meter repeater receiver. He detected a lot of pulse noise, and suspects the windmill powered generator controller may be the cause. We suspect this may also relate to the de-sense or feedback problems with our 2-Meter repeater at that site. Various ideas to investigate the noise were mentioned. There also seems to be similar noise at another Brookline site, the site of the K1IW UHF repeater. After rework, the 146.82 repeater will be moved from K1IW's garage back to the Clay Center. That may be an opportunity to use a spectrum analyzer to see what is on the air there.

We briefly mentioned possible antenna work at Marlboro East, and the need for some repairs to the structure at Marlboro West. We expect a work party at Marlboro West in June.

Although it is not clear what the MMRA technical role will be in the BAA Marathon, we unanimously authorized the use of all our repeater assets to support that event.

The March meeting will be at the Campion Center, but a speaker had not been selected by the time we met.

We adjourned at 9:40 PM.

MMRA Leaders

| | | |
|----------------------------|----------------|--------|
| President | Bob DeMattia | K1IW |
| Vice President | Steve Telsey | N1BDA |
| Secretary | John McGovern | W1JMC |
| Treasurer | Kevin Paetzold | K1KWP |
| Clerk | Bob Evans | N1BE |
| Technical Officer | Bryan Cerqua | W1BRI |
| Director 2006-08 | Clark Conti | N1NVK |
| Director 2006-08 | Bill Hanrahan | W1WH |
| Director 2005-07 | Steve Schwarm | W3EVE |
| Director 2005-07 | Roger Coulson | WA1NVC |
| Emergency Coordinator | James Cahill | KB1LOY |
| Net Manager | Larry Banks | W1DYJ |
| Newsletter Editor | Larry Banks | W1DYJ |
| Public Service Coordinator | James Cahill | KB1LOY |
| VEC Liaison | Bill Wade | K1IJ |
| Web Page Editor | Bob DeMattia | K1IW |

Newsletter Delivery

If you received this via US Mail, you might want to think about having it sent by eMail. You will receive it earlier, it will be in color, it may have MORE great content, and it will save the MMRA \$\$\$! Send your request to W1JMC@mmra.org.

Past Newsletters are available at <http://www.mmra.org/>

Don't Forget!

Tuesday's @ 8 PM
Technical, Informational
and Other Stuff Net
Larry Banks, W1DYJ

Most of the MMRA's repeaters are linked every Tuesday night for the MMRA TIAOS Net. Join us! Over the past two months we averaged seven participants with a high of twelve. This is a good way to keep up with what is happening with the MMRA as well as ask your ham related questions.

We are looking for a net control operator for the first Tuesday of each month – contact me at W1DYJ@mmra.org if you would like to try your hand at running a net some evening – we have a script that you can use to start with. This is good practice for a number of ham related operations, from emergency preparedness to contesting.

Current Net Control Operators:

| | |
|---------------------------------|---------------------|
| Week 1 ????? | We Need You! |
| Week 2 W1EUJ | Dave Goncalves |
| Week 3 KB1KZI | Jimmy Devarie |
| Week 4 K1KWP | Kevin Paetzold |
| Week 5 W1DYJ | Larry Banks |
| (also substitute & Net Manager) | |



MMRA VE Sessions

3rd Saturday of each Month
 9 AM at the Marlboro Public Library
Contact: Bill Wade, K1IJ
 781-891-9079 Evenings 6 to 10 PM,
 Weekends 8 AM to 10 PM.
Accredited by the ARRL VEC

Membership Meeting
21 March 2007 @ 7:30 PM @ the Campion Center
Mike Raisbeck, K1TWF
New England Division Assistant Director
ARRL Update ~ developments at the league and Q & A Session

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More Information on Page 3

Calendar of Ham Radio Events

Public Service Events

See this web site for contact information

<http://purl.org/hamradio/publicservice/nediv>

Apr 16 Hopkinton MA Boston Marathon
Apr 29 Boston MA Multiple Sclerosis Walk
Apr 29 Groton MA Groton Road Race
Apr 29 Needham MA Run of the Charles canoe
Apr 29 Wellesley MA Multiple Sclerosis Journey of
May 6 Portsmouth NH Am Diabetes Tour de Cure
May 19 Portsmouth NH NH Lung Clean Air Challenge
Jun 16 Mt WashngtnNH Mt Washington Road

New England Area Ham - Electronic Flea Markets

See this web site for contact information

<http://mit.edu/w1gsl/Public/ne-fleas>

18 Mar Henniker NH CVRC
31 Mar Londonderry NH IRS
1 Apr Framingham MA FARA
14-15 Apr Wakefield MA Photographica
15 April Cambridge MA FLEA at MIT
21 Apr Manchester NH NEAntqRC
21 Apr S Portland ME PAWA
22 April Enfield CT NEWS East VHF UHF Conf

THE MINUTEMAN REPEATER ASSOCIATION

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Email: contact@mmra.org



WE'RE ON THE WEB!
[HTTP://WWW.MMRA.ORG/](http://www.mmra.org/)
